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Fri, 22 Mar 91 13:18:56 -0800 for /usr/lib/sendmail -oc -odb -oQ/var/spool/
lqueue -oi -finfo-hams-relay info-hams-list
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Date: Fri, 22 Mar 91 13:18:55 PST
From: Info-Hams Mailing List and Newsgroup <info-hams-relay@ucsd.edu>
Reply-To: Info-Hams@ucsd.edu
Subject: Info-Hams Digest V91 #231
To: Info-Hams@ucsd.edu

Info-Hams Digest Fri, 22 Mar 91 Volume 91 : Issue 231

Today's Topics:

 AMSAT ORBITAL ELEMENTS
 Hypercard HamStack Articles Part 4 of 8
 TH-77A mod info and observations

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

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(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 18 Mar 91 01:49:46 GMT
From: sdd.hp.com!zaphod.mps.ohio-state.edu!magnus.acs.ohio-state.edu!tut.cis.ohio-
state.edu!n8emr!gws@ucsd.edu
Subject: AMSAT ORBITAL ELEMENTS
To: info-hams@ucsd.edu

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=====
|           Relayed from AMSAT BBS  NETWORK           |
| N8EMR's Ham BBS, 614-895-2553 1200/2400/9600/V.32/PEP/MNP5 |
=====
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SB KEPS @ AMSAT \$0RBS-075.0
Orbital Elements 075.OSCAR

HR AMSAT ORBITAL ELEMENTS FOR OSCAR SATELLITES
FROM N3FKV HEWITT, TX March 16, 1991
TO ALL RADIO AMATEURS BT

Satellite: A0-10
Catalog number: 14129
Epoch time: 91063.34532753
Element set: 639
Inclination: 25.8586 deg
RA of node: 157.5216 deg
Eccentricity: 0.5994082
Arg of perigee: 222.1074 deg
Mean anomaly: 71.7788 deg
Mean motion: 2.05883481 rev/day
Decay rate: -1.04e-06 rev/day^2
Epoch rev: 3009

Satellite: U0-11
Catalog number: 14781
Epoch time: 91071.15127494
Element set: 935
Inclination: 97.9110 deg
RA of node: 119.5170 deg
Eccentricity: 0.0013139
Arg of perigee: 114.3366 deg
Mean anomaly: 245.9203 deg
Mean motion: 14.66402910 rev/day
Decay rate: 3.826e-05 rev/day^2
Epoch rev: 37522

Satellite: RS-10/11
Catalog number: 18129
Epoch time: 91073.92234592
Element set: 553
Inclination: 82.9271 deg
RA of node: 128.5220 deg
Eccentricity: 0.0013535
Arg of perigee: 88.9635 deg
Mean anomaly: 271.3121 deg
Mean motion: 13.72156828 rev/day

Decay rate: -4.5e-07 rev/day²
Epoch rev: 18666

Satellite: A0-13

Catalog number: 19216
Epoch time: 91053.11378759
Element set: 239
Inclination: 56.8252 deg
RA of node: 109.0878 deg
Eccentricity: 0.7128019
Arg of perigee: 247.8593 deg
Mean anomaly: 26.4295 deg
Mean motion: 2.09703733 rev/day
Decay rate: -1.26e-06 rev/day²
Epoch rev: 2061

Satellite: F0-20

Catalog number: 20480
Epoch time: 91069.51316501
Element set: 189
Inclination: 99.0193 deg
RA of node: 70.4245 deg
Eccentricity: 0.0540988
Arg of perigee: 165.0177 deg
Mean anomaly: 196.7681 deg
Mean motion: 12.83171893 rev/day
Decay rate: 3.1e-07 rev/day²
Epoch rev: 5090

Satellite: A0-21

Catalog number: 21087
Epoch time: 91073.24086400
Element set: 22
Inclination: 82.9442 deg
RA of node: 303.9861 deg
Eccentricity: 0.0035526
Arg of perigee: 161.3366 deg
Mean anomaly: 198.9100 deg
Mean motion: 13.74351124 rev/day
Decay rate: 1.67e-06 rev/day²
Epoch rev: 598

Satellite: RS-12/13

Catalog number: 21089
Epoch time: 91067.77553240
Element set: 24
Inclination: 82.9284 deg
RA of node: 178.5246 deg

Eccentricity: 0.0028936
Arg of perigee: 196.1480 deg
Mean anomaly: 163.8822 deg
Mean motion: 13.73867322 rev/day
Decay rate: 2.53e-06 rev/day^2
Epoch rev: 435

/EX

SB KEPS @ AMSAT \$ORBS-075.D
Orbital Elements 075.MICROS

HR AMSAT ORBITAL ELEMENTS FOR THE MICROSATS
FROM N3FKV HEWITT, TX March 16, 1991
TO ALL RADIO AMATEURS BT

Satellite: UO-14
Catalog number: 20437
Epoch time: 91070.20133924
Element set: 314
Inclination: 98.6771 deg
RA of node: 150.2384 deg
Eccentricity: 0.0011653
Arg of perigee: 90.6078 deg
Mean anomaly: 269.6428 deg
Mean motion: 14.28953664 rev/day
Decay rate: 1.233e-05 rev/day^2
Epoch rev: 5899

Satellite: A0-16
Catalog number: 20439
Epoch time: 91072.69307529
Element set: 206
Inclination: 98.6779 deg
RA of node: 152.9802 deg
Eccentricity: 0.0012709
Arg of perigee: 86.6528 deg
Mean anomaly: 273.6104 deg
Mean motion: 14.29052696 rev/day
Decay rate: 1.183e-05 rev/day^2
Epoch rev: 5935

Satellite: D0-17
Catalog number: 20440
Epoch time: 91073.51885409
Element set: 206
Inclination: 98.6778 deg
RA of node: 153.8367 deg
Eccentricity: 0.0012809

Arg of perigee: 84.5951 deg
Mean anomaly: 275.6670 deg
Mean motion: 14.29125572 rev/day
Decay rate: 1.287e-05 rev/day^2
Epoch rev: 5947

Satellite: W0-18

Catalog number: 20441
Epoch time: 91072.72210085
Element set: 205
Inclination: 98.6749 deg
RA of node: 153.0876 deg
Eccentricity: 0.0013279
Arg of perigee: 86.9744 deg
Mean anomaly: 273.1857 deg
Mean motion: 14.29185086 rev/day
Decay rate: 1.095e-05 rev/day^2
Epoch rev: 5936

Satellite: L0-19

Catalog number: 20442
Epoch time: 91074.10176091
Element set: 206
Inclination: 98.6778 deg
RA of node: 154.5095 deg
Eccentricity: 0.0013697
Arg of perigee: 82.9535 deg
Mean anomaly: 277.3203 deg
Mean motion: 14.29264474 rev/day
Decay rate: 1.154e-05 rev/day^2
Epoch rev: 5956

/EX

SB KEPS @ AMSAT \$ORBS-075.W
Orbital Elements 075.WEATHER

HR AMSAT ORBITAL ELEMENTS FOR WEATHER SATELLITES
FROM N3FKV HEWITT, TX March 16, 1991
TO ALL RADIO AMATEURS BT

Satellite: NOAA-9

Catalog number: 15427
Epoch time: 91073.88689080
Element set: 713
Inclination: 99.1733 deg
RA of node: 85.1335 deg
Eccentricity: 0.0014784
Arg of perigee: 333.1612 deg

Mean anomaly: 26.8794 deg
Mean motion: 14.12876823 rev/day
Decay rate: 9.89e-06 rev/day^2
Epoch rev: 32220

Satellite: NOAA-10
Catalog number: 16969
Epoch time: 91073.90651808
Element set: 557
Inclination: 98.5725 deg
RA of node: 100.4801 deg
Eccentricity: 0.0013162
Arg of perigee: 197.6458 deg
Mean anomaly: 162.4270 deg
Mean motion: 14.23969219 rev/day
Decay rate: 1.088e-05 rev/day^2
Epoch rev: 23313

Satellite: MET-2/17
Catalog number: 18820
Epoch time: 91073.64899932
Element set: 461
Inclination: 82.5460 deg
RA of node: 135.4663 deg
Eccentricity: 0.0015355
Arg of perigee: 288.6599 deg
Mean anomaly: 71.2891 deg
Mean motion: 13.84453181 rev/day
Decay rate: 4.97e-06 rev/day^2
Epoch rev: 15760

Satellite: MET-3/2
Catalog number: 19336
Epoch time: 91074.04387406
Element set: 712
Inclination: 82.5416 deg
RA of node: 85.8137 deg
Eccentricity: 0.0017958
Arg of perigee: 1.7769 deg
Mean anomaly: 358.3399 deg
Mean motion: 13.16915916 rev/day
Decay rate: 7.4e-07 rev/day^2
Epoch rev: 12660

Satellite: NOAA-11
Catalog number: 19531
Epoch time: 91073.54430414
Element set: 469

Inclination: 99.0174 deg
RA of node: 27.6935 deg
Eccentricity: 0.0011161
Arg of perigee: 242.2837 deg
Mean anomaly: 117.7184 deg
Mean motion: 14.11983283 rev/day
Decay rate: 1.281e-05 rev/day^2
Epoch rev: 12711

Satellite: MET-2/18
Catalog number: 19851
Epoch time: 91073.83642232
Element set: 413
Inclination: 82.5227 deg
RA of node: 12.8078 deg
Eccentricity: 0.0014374
Arg of perigee: 333.1803 deg
Mean anomaly: 26.8626 deg
Mean motion: 13.84079479 rev/day
Decay rate: 4.65e-06 rev/day^2
Epoch rev: 10300

Satellite: MET-3/3
Catalog number: 20305
Epoch time: 91073.90088985
Element set: 324
Inclination: 82.5487 deg
RA of node: 27.0543 deg
Eccentricity: 0.0016859
Arg of perigee: 16.2940 deg
Mean anomaly: 343.8731 deg
Mean motion: 13.15941549 rev/day
Decay rate: 4.3e-07 rev/day^2
Epoch rev: 6655

Satellite: MET-2/19
Catalog number: 20670
Epoch time: 91073.99417667
Element set: 159
Inclination: 82.5435 deg
RA of node: 73.7065 deg
Eccentricity: 0.0014250
Arg of perigee: 249.9417 deg
Mean anomaly: 110.0206 deg
Mean motion: 13.83922494 rev/day
Decay rate: 1.92e-06 rev/day^2
Epoch rev: 3597

Satellite: FY-1/2
Catalog number: 20788
Epoch time: 91072.24506318
Element set: 106
Inclination: 98.9489 deg
RA of node: 107.7205 deg
Eccentricity: 0.0016389
Arg of perigee: 84.9413 deg
Mean anomaly: 275.3618 deg
Mean motion: 14.01071252 rev/day
Decay rate: 6.48e-06 rev/day^2
Epoch rev: 2677

Satellite: MET-2/20
Catalog number: 20826
Epoch time: 91073.82581576
Element set: 112
Inclination: 82.5217 deg
RA of node: 12.9235 deg
Eccentricity: 0.0013355
Arg of perigee: 138.3298 deg
Mean anomaly: 221.8903 deg
Mean motion: 13.83290337 rev/day
Decay rate: 4.01e-06 rev/day^2
Epoch rev: 2316

/EX

SB KEPS @ AMSAT \$ORBS-075.M
Orbital Elements 075.MISC

HR AMSAT ORBITAL ELEMENTS FOR MANNED AND MISCELLANEOUS SATELLITES
FROM N3FKV HEWITT, TX March 16, 1991
TO ALL RADIO AMATEURS BT

Satellite: MIR
Catalog number: 16609
Epoch time: 91073.81143428
Element set: 316
Inclination: 51.6087 deg
RA of node: 45.9606 deg
Eccentricity: 0.0017261
Arg of perigee: 58.6490 deg
Mean anomaly: 301.5239 deg
Mean motion: 15.62798001 rev/day
Decay rate: 3.0040e-04 rev/day^2
Epoch rev: 29038

Satellite: HUBBLE

Catalog number: 20580
Epoch time: 91073.07891131
Element set: 403
Inclination: 28.4694 deg
RA of node: 330.1449 deg
Eccentricity: 0.0005781
Arg of perigee: 40.5321 deg
Mean anomaly: 319.5710 deg
Mean motion: 14.86679396 rev/day
Decay rate: 8.617e-05 rev/day^2
Epoch rev: 4814

/EX

--

Gary W. Sanders (gws@n8emr or ...!osu-cis!n8emr!gws), 72277,1325
N8EMR @ W8CQK (ip addr) 44.70.0.1 [Ohio AMPR address coordinator]
HAM BBS (1200/2400/9600/V.32/PEP/MNP=L5) 614-895-2553
Voice: 614-895-2552 (eves/weekends)

Date: 18 Mar 91 15:45:07 GMT
From: genrad!dls@husc6.harvard.edu
Subject: Hypercard HamStack Articles Part 4 of 8
To: info-hams@ucsd.edu

5-Feb-91 08:26 dls Updates for new feature

BUGS to fix in HyperCard Ham Stacks

This assumes that you already have the article on how to fix bugs in my HyperCard Ham Stacks. If you don't have this, ASK for it. It gives a general description of how to fix the most LIKELY bugs in the Ham Stacks.

This contains the following updates:

Novice Ham Stack v3.1 CHANGES to get to v3.2 - adds a new (but unnecessary for normal users!) feature to provide better score sheet printing, plus the capability to save scores for later printing. This is useful if you GIVE Novice tests using this stack (as I do!). Since this change is VERY COMPLICATED, I separated it from v3.1 changes. I repeat, this update is NOT NECESSARY for normal users.

<Angle brackets give an explanation of the fix>

MSG: means type the following into the message box. You can get a message box at any time by pressing Ctrl M (in HyperCard, that is).

Menuitem->Menuchoice: means choose the menu item as specified.

Novice Ham Stack v3.1 CHANGES to get to v3.2:

<The next change is NOT REQUIRED for normal users and is very complex to add in. It provides a better score sheet to be printed, plus the capability to save scores for later printing. I use this feature because I GIVE Novice tests using the Ham Stack, and I don't generally carry my printer along to the test site (generally someone else's house). With that warning, I'll proceed to describe the change as best I can. You'll note that this is a current undocumented feature of Version 3.0. This change should make the "prototype feature" useful even to users :-) >

0. a. IMPORTANT, DO NOT SKIP THIS STEP. <ck for the prototype feature>
b. If you just updated from Version 3.0 to Version 3.1 using the above directions, don't do steps 8.c-d. If you already did, or you didn't just do the update, do this:
Before opening Novice stack, pull up a message box and type:
put true into hamstacktest
Now open Novice stack.
c. MSG: go card report
d. If there isn't a button called "saved scores" on this card, STOP.
This change will most likely not work, since the prototype feature is not in place. I suggest you simply send me a SASE and diskette to receive Version 3.2 if you really want it. Remember, this feature is NOT necessary for normal users.
1. a. Go->First <part of the "better" scores>
b. Objects->Background Info, Click Script
c. Edit script of "on buildList". What follows is a quick change lines, followed by the entire "on buildList" as it should appear after you are finished. (the <<< are used ONLY to show where the changes occur and are NOT part of the script).

Remove 6 contiguous lines "put empty into ky1" thru "put empty into ky6". Remove 6 lines (not contiguous) "put ky1&x&...into ky1" thru "put ky6&x&...into ky6". Change "go to card K" to "go to card savedscores". Change next 6 lines to change "ky" to "sky".

```
on buildList -- *** rename to buildList1 if using sequential questions
-- or to buildList if using randomly-generated questions
global questlist, rightone, lockkey, questans, questkey
global sky1, sky2, sky3, sky4, sky5, sky6 -- used for saved ans key
-- initialization
set the cursor to 4
-- *** questgrp contains the number of questions in each question group
-- and is used to generate random questions, one from each group.
-- Note that the question groups MUST BE sequential in order for this
-- to work. That is, group 1 must be the first 10 questions, group 2
```

```

-- must be the next 10 questions, and so on.
put "10,10,10,13,13,13,10,14,10,11," into questgrp
put "36,12,18,10,14,10,12,10,11,11," after questgrp
put "12,11,10,10,10,12,11,12,10,17" after questgrp
-- *** The number of commas in questans and questkey must be equal to
-- number of questions in each test minus one. For example, for a
-- 30-question test, there are 29 commas.
put ",,,,,,,,,,,,,,,,,,,,,,,,," into questans
put ",,,,,,,,,,,,,,,,,,,,,,,,," into questkey
put empty into questlist
put 0 into startgroup
put empty into sky1 <<<
put empty into sky2
put empty into sky3
put empty into sky4
put empty into sky5
put empty into sky6
set lockscreen to true
-- generate the questions from subgroups randomly
repeat with i = 1 to number of items of questgrp
  put startgroup into thisquest
  add the random of item i of questgrp to thisquest
  put questlist & "#" & thisquest & "," into questlist
  add item of i of questgrp to startgroup
end repeat
delete last character of questlist
-- *** generate the answer key for these questions. this currently
-- only handles up to first 51 questions.
repeat with i = 1 to number of items of questlist
  if i > 51 then exit repeat
  put item of i of questlist into thisquest
  go to card thisquest
  -- *** You can put the card # or the subelement # or question #
  -- as question # in key
  put "#" & i into x -- question # option
  -- put the short name of this card into x -- card # option
  -- put first word of field "Q1" into x -- subelement # option
  put first word of field "Q1" into y -- used for answer key
  if i < 18 then
    put sky1&x&x& "(" & y & ")" & return into sky1
    <<<
    put sky2&rightone&return into sky2
  else if i < 35 then
    put sky3&x&x& "(" & y & ")" & return into sky3
    <<<
    put sky4&rightone&return into sky4
  else
    put sky5&x&x& "(" & y & ")" & return into sky5

```

```

    <<<
    put sky6&rightone&return into sky6
  end if
end repeat
go to card savedscores          <<<
put sky1 into field key1        <<<
put sky2 into field key2
put sky3 into field key3
put sky4 into field key4
put sky5 into field key5
put sky6 into field key6
-- prevent buildList from being called again immediately
put true into lockkey
go to first card
set lockscreen to false
end buildList

```

d. Without exiting the script, make similar changes to "on buildList1". Here are quick change lines, followed by the complete script after change has been made.

Add "global sky1, sky2, sky3, sky4, sky5, sky6". Change 4 lines "put empty into ky1" thru "put empty into ky4" to 6 lines "put empty into sky1" thru "put empty into sky6". Change "if i > 32 then exit repeat" to "if i > 51 then exit repeat". Delete 7 lines "if i < 17 then" thru "end if" and copy the 10 lines from buildList into buildList1, same place, starting from "if i < 18 then" thru "end if". Change "go to card K" to "go to card savedscores". Change 4 lines "put ky1 into field key1" thru "put ky4 into field key4" to 6 lines "put sky1 into field key1" thru "put sky6 into field key6".

```

on buildList1 -- *** rename to buildList for sequential questions or to
-- buildList1 for randomly-generated questions
global questlist, rightone, lockkey, questans, questkey
global sky1, sky2, sky3, sky4, sky5, sky6 -- used for saved ans key
-- initialization
set the cursor to 4
-- *** be sure that the group number of each question card matches the
-- question number. For example, question #1 is group 1, question
-- #2 is group 2, and so on.
put empty into questlist
put empty into questans
put empty into questkey
put empty into sky1          <<<
put empty into sky2
put empty into sky3
put empty into sky4
put empty into sky5

```

```

put empty into sky6
set lockscreen to true
repeat with i = 1 to number of cards of bkgnd Test
  put "#" & i & "," after questlist
  put "," after questans
  put "," after questkey
end repeat
delete last character of questlist
delete last character of questans
delete last character of questkey
-- *** generate the answer key for these questions. This currently
-- only works for first 51 questions.
repeat with i = 1 to number of items of questlist
  if i > 51 then exit repeat <<<
  put item i of questlist into thisquest
  go to card thisquest
  -- You can put the card # or the subelement # as question # in key
  put the short name of this card into x
  -- put first word of field "Q1" into x
  if i < 18 then <<<
    put sky1&x&x&("y&")&return into sky1
    <<<
    put sky2&rightone&return into sky2 <<<
  else if i < 35 then <<<
    put sky3&x&x&("y&")&return into sky3
    <<<
    put sky4&rightone&return into sky4 <<<
  else <<<
    put sky5&x&x&("y&")&return into sky5
    <<<
    put sky6&rightone&return into sky6 <<<
  end if <<<
end repeat
go to card savedscores <<<
put sky1 into field key1 <<<
put sky2 into field key2 <<<
put sky3 into field key3 <<<
put sky4 into field key4 <<<
put sky5 into field key5 <<<
put sky6 into field key6 <<<
-- prevent buildList from being called again immediately
put true into lockkey
go to first card
set lockscreen to false
end buildList1

```

e. Click OK.

2.
 - a. Go to help card (click ? button) <change version>
 - b. Change "Version 3.1" to "Version 3.2".
 - c. Add this paragraph right before last paragraph with starts "If you like...":

There is a new button on the report card which allows score data from a test to be stored for printing later (if you just want to print the scores, use the Print Scores button). This is useful if you don't have a printer hooked up currently. It will display the name of the card it is storing before creating it. WRITE THIS NAME DOWN. Later, you may go to that card and print the scores by getting a message box (hold down the Control key and press m) and typing
 go card x
 where x is the name it displayed. After printing the card, there is a button on that card to delete the card since it is no longer needed.
3.
 - a. MSG: go card report <fix report card>
 - b. Objects->Card Info, click Script
 - c. Add script "on build_savedscores" and modify "on savesc" to look like the following:

```

on build_savedscores
  global questlist, questans
  global username
  put empty into savedscore1
  put empty into savedscore2
  put empty into savedscore3
  repeat with i = 1 to number of items of questlist
    if i < 18 then
      put savedscore1&item i of questans&return into savedscore1
    else if i < 35 then
      put savedscore2&item i of questans&return into savedscore2
    else
      put savedscore3&item i of questans&return into savedscore3
    end if
  end repeat

  go card savedscores
  put username into cd field name
  put the date into cd field date
  put savedscore1 into field ans1
  put savedscore2 into field ans2
  put savedscore3 into field ans3
end build_savedscores

```

```

on savesc
  global username
  doMenu "Copy Card"
  doMenu "Paste Card"

```

```

set name of this card to "report_" & username
set cantDelete of this card to false
set the script of this card to empty
set the script of button "save scores" to empty
set the script of button "Print Score" to empty
build_savedscores
doMenu "Copy Card"
doMenu "Paste Card"
set the name of this card to "savedscores_" & username
set cantDelete of this card to false
set the script of this card to empty
show button "Delete Saved"
show button "Print Score"
go card report
end savesc

```

- d. Click OK
- e. Hold Option & Control down, then click on "Print Score" button to edit its script.
- f. Change "go card K" to "build_saveedscores"
- g. Click OK
- h. Hold Option & Control down, then click on "save scores" button to edit it's script.
- i. Change the script to read as follows"

```

on mouseUp
  global username
  put "this will create card savedscores_" & username into foo
  answer foo with "OK" or "Cancel"
  if it is "Cancel" then
    exit mouseUp
  end if
  get userlevel
  put it into savelevel
  set the userlevel to 5
  savesc
  set the userlevel to savelevel
end mouseUp

```

- j. Click OK

4.
 - a. MSG: go card K <remove unneeded card>
 - b. Edit->Delete Card
5.
 - a. MSG: go card savedscores <update savedscores card>
 - b. Edit "Print Score" button script as follows (3h to enter script):

```

on mouseUp

```

```

lock screen
open printing
put "report_" & cd field name into foo
push card
get foo
go card it
print this card
pop card
print this card
close printing
unlock screen
end mouseUp

```

- c. Create new button: Objects->Create Button with these attributes:
name "Delete Saved", transparent, Show Name, Icon 2 (this is an exclamation inside a triangle). Size the button so it's the same size as "Print Score" button and place it next to the "Print Score" button.
- d. Tools->Browse (top left icon).
- e. Edit "Delete Saved" button script as follows:

```

on mouseUp
  put cd field name into foo2
  get the short name of this card
  put it into foo1
  if it is "savedscores" then
    answer "Can't delete this savedscores card" with "Cancel"
    exit mouseUp
  end if
  if foo2 is empty then
    answer "Can't delete card with no Username" with "Cancel"
    exit mouseUp
  end if
  get the userlevel
  put it into savelevel
  set the userlevel to 5
  put "report_" & foo2 into foo
  get foo
  go card it
  doMenu "Delete Card"
  put "savedscores_" & foo2 into foo
  get foo
  go card it
  doMenu "Delete Card"
  set the userlevel to savelevel
  go card report
end mouseUp

```


f. MSG: hide button "Print Score"
g. MSG: hide button "Delete Saved"
<these 2 buttons should only show on CREATED saved cards, not on
the card "savedscores".>

6. a. MSG: go card "About...." <this is the help card again>
b. Click Compact Stack button
c. MSG: put false into hamstacktest
d. go to Home stack by clicking on any house, UPDATE COMPLETE!

->Diana L. Syriac dls@genrad.com Ham: KC1SP (Sweet Pea) <-
->I'D RATHER BE FLYING! P-ASEL, INST CAP: 1LT, Freedom 690 Mobile<-
->GenRad AD ASTRA, PER ASPERA <-
->MS/6, 300 Baker Ave, Concord, Mass. 01742 (508) 369-4400 x2459 <-

Date: 14 Mar 91 19:31:19 GMT
From: swrinde!zaphod.mps.ohio-state.edu!samsung!rex!rouge!pc.usl.edu!jpd@ucsd.edu
Subject: TH-77A mod info and observations
To: info-hams@ucsd.edu

Due to the recent comments about the TH-77A, I am reposting the
modification info and a collection of observations about this HT:

20 NOV 1990:

Here is the complete list of mods that are know to date for the
Kenwood TH-77A Dual Band hand held:

>From the factory, it can receive 138-174MHz and seems to do it quite
well with the supplied rubber duck antenna. It also can receive
438-450MHz and, likewise, does this quite well too! One very interesting
feature of the TH77A is that it can do *DUAL* UHF receive! To do this
it uses the VHF receive section and you have less sensitivity, but I
really haven't noticed much signal degradation at all.

Kenwood has made this radio compatible with the new ICOM S-Series radios
from what I can tell. It has DTSS (Dual Tone Squelch System) which means
that your radio will not break squelch until it hears a particular
sequence of three DTMF tones (ICOM has this also and they call it

Coded Squelch which also use three tones). The TH77A also has a paging function that works *exactly* like the ICOM paging. You program the radio with a personal 3 digit DTMF code and someone pages you by transmitting YOUR 3 digit code, followed by a * character and then their own 3 digit code. The ICOM will start to ring to let you know that you have been paged and display the 3 digit code of the person that has paged you. The TH77A will beep once and open squelch as long as the person that paged you does not drop carrier (I prefer the ICOM method for this part, but there is a work around that I will mention in a bit). One thing the TH77A does at this point is bring up a timer so you know how long its been since you've been paged. Maximum time is 99 hours and 99 minutes. Let's see if your battery can hold out that long! The workaround so the TH77A will ring, rather than just beep and open squelch is to put the radio in the pager mode AND also put it in Tone Alert. When you get paged... the radio will "beep beep (pause) beep beep" five times and start up the timer. Kenwood has provided two different types of BEEPS for you. The second type is to ring like an electronic telephone. This one *REALLY* sounds nice!! For those of you that like autodial memories, there are 10 memories that can store 15 characters each. There are 40 regular frequency memories in this radio and you can make them all UHF if you like (no restriction).

NOW! On to the *EXTRA* capabilities (there are other BASIC functions that I didn't mention, those were just the highlights).

After making a few modifications to this radio, you can get it to do the regular stuff that the IC24AT will do, such as AM aircraft, expanded UHF (400-512 depending on PLL lock) and 800-950 (again, depending on PLL lock) in addition to cross band repeat.

HOW DO YOU DO THIS!?

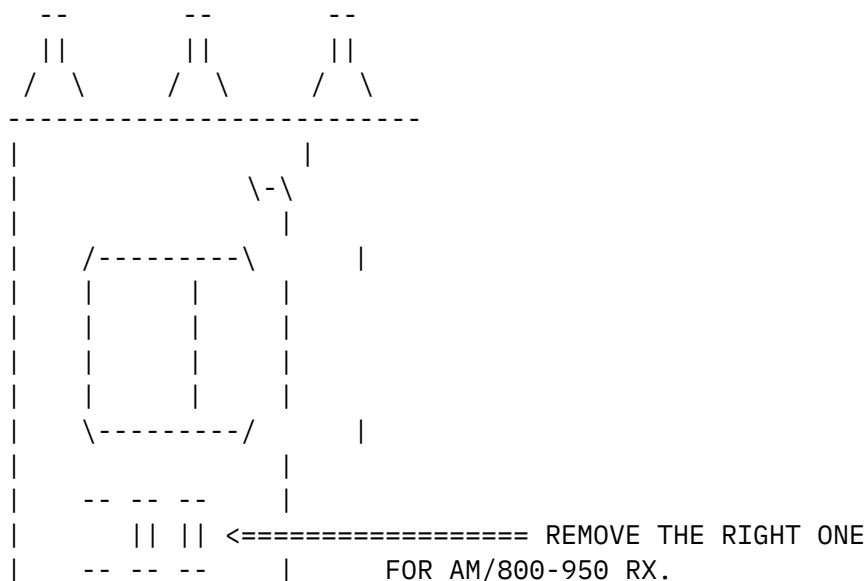
Easy (if you've got a steady had for removing a chip resistor!).

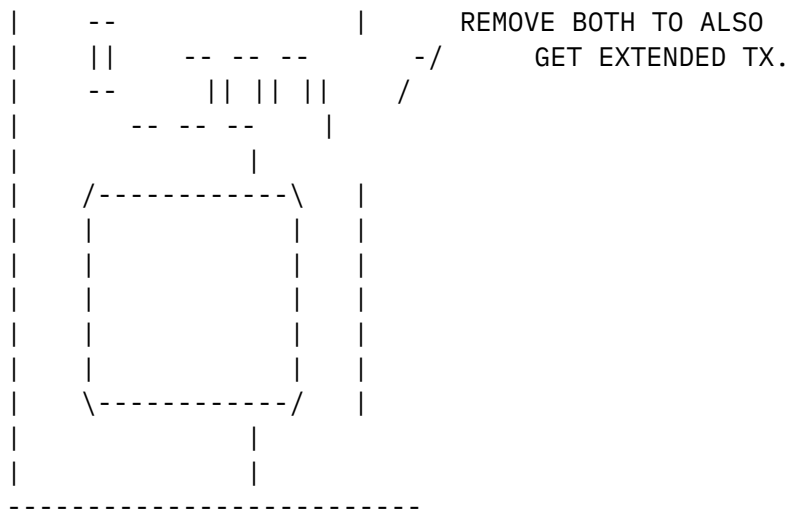
Open it up. There are 3 screws visible on the outside and 4 more underneath the battery pack. Unlike most radios, this one doesn't have a spring for the battery release switch. It gets spring action from the metal plate that you will remove when you take out the four screws. I love it!

Anyway, the area you will be working in is on the control board which is fixed to the front section of the radio. In particular, look for the yellow electrolytic capacitor (its yellow in mine) that is at the dead center of the board (there are two IC's, one above this and 1 below this). You will have to remove the electrolytic capacitor (C124) and set it aside for a few minutes. You will be putting it back afterward. The reason for removing this is so that

- 1 - With one side of the green wire pulled, you will have 136-174 RX, 400-512 RX. If that's all you want, you are done.
- 2 - By removing the rightmost chip resistor (R129), in addition to keeping one side of the green wire disconnected, you will have 136-174 RX, 400-512 RX, 118-136 AM RX, 800-950 RX.
- 3 - By removing both of the chip resistors, in addition to putting the green wire BACK where it belongs, you will have 136-174 RX/TX, 400-512 RX/TX, 118-136 AM RX and 800-950 RX.

NOTE! ONCE YOU START DOING THIS STUFF, YOUR MEMORIES AND POWER ON SWITCH CONFIGURATIONS WILL ALL BE LOST! MAKE A NOTE OF HOW YOU ARE SETUP BEFORE YOU BEGIN!





Layout shown with electrolytic capacitor C124 removed

The best way to do this is to heat up both sides of the resistor and push it out of the way with something small. At least this was the best way for me! Once it's out, put the capacitor back in place and close it up. (Put the green wire back also, if you are making the out of band TX mod too!)

TO OPERATE THE NEW FEATURES

To receive AM aircraft, get the VHF side in the main band and hit the ENT key twice to go to the VFO. Once you are in the VFO, hit the UxU key twice. Once for dual UHF receive and the 2nd time for AM (118-136).

To receive 800-950, get the UHF side in the main band and hit the ENT key twice to go to the VFO. Once you are in the VFO, hit the UxU key once.

To enable crossband repeat, hold down the SUB BAND UP ARROW key while turning on power. To disable, do the same thing again. Kenwood says that both bands can contain shift information but only one band can include an encode/decode tone.

One more thing. The POWER ON + 8 KEY that allows you to select the kind of memory recall will be a bit different. Now, you will have an extra option in the right side of the display. E1 or E2 which may be selected with the VFO control on the top of the radio. E1 mode will allow you to automatically make the radio switch to AM or switch to the 800MHz stuff as you use the VFO knob to move through your memory channels. E2 mode will skip over any memories that are AM or 800-950MHz. In E2, the only way

to recall one of the *special* memories is to go to the VFO, hit the UxU key to go to AM or 800MHz and then recall one of these memories. Personally, I have mine in E1 and don't know any reason why anyone would want to be in E2, but its there if you need it!

The Kenwood modification sheet says the following about AM sensitivity:

While the receiver sensitivity is neither specified nor guaranteed for the AM range, the sensitivity is typically less than 1uV for 10dB signal plus noise to noise ratio between 123-131MHz. The band edges, however, measure between 8-20uV for 1dB S+N/N ratio.

SOME PERSONAL OBSERVATIONS

My radio seems to have a hole in it in the 800MHz band. I get this beeping sound when I try tuning between 864-875MHz (I believe the TH77A beeps when it can't lock). Also, the sensitivity could be better around 483MHz (local Sheriff). I did notice that using the dual UHF receive and tuning to 483MHz was better than using the straight UHF receive. (Remember, the dual UHF RX uses the VHF section with reduced sensitivity. Well, its reduced in the amateur portion, but seems to be enhanced out of the band!) At around 506MHz (Los Angeles PD) its VERY weak. I could barely hear anything WITH an outside antenna. Maybe some tweaking inside could improve this (I haven't really looked for the VCO yet).

Many thanks to Pontus Hedman (rph@sq.com) for helping me put this information together! Thanks also goes out to James Dugal (jpd@pc.usl.edu). By the way, Pontus did mention that checking the input frequency was a bit annoying. You have to hit FUNCTION SHIFT to get the radio to REVERSE and listen to the input. I agree!

Anyway, hope this information helps you get more from you new toy!
Its a *REALLY* nice radio!!

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4800 Oak Grove Drive	
Pasadena, CA 91109	

----- End Included Message -----

Looks good!

One more feature worth mentioning for humour value:

If you hold down M and PTT and power up, the HT enters "game mode". You get "0000" on the left of the screen. Press "0" and digits start changing rapidly in hex (consequently all appearing as "8"). By pressing 1,2,3 or F you stop the appropriate column. If they all come up the same, er, well I guess you win... maybe something good happens then. Maybe it enables transmit on, cellphone, air, and 30cm :-). At 1 chance in 65536 I'm not about to try to find out, though...

(Somebody with the service manual told me the above)

--

Pontus Hedman rph@sq.com {uunet|utzoo}!sq!rph
VE3RPH (416) 963-8337

Despite what I said in my previous msg about not wanting to try it, I just did. Much to my amazement, after only one or two minutes, I won! By timing the keypresses very carefully, one can improve the chances from 1 in 4096 significantly, it seems [ignore my "1 in 65536" in my previous mail, obviously I wasn't thinking straight.. obviously there are 16 winning combinations out of 65536]

And yes, something Interesting does happen when you get all four numbers the same (at least when you get "2222" like I got). More specifically, the display starts doing something humorous.

Subject: Re: Your mod results
To: jpd@pc.usl.edu (Dugal James P.)
From: gwalsh@kilroy.Jpl.Nasa.Gov (Gerald J. Walsh)

> I have serial number 20603908.

I have serial number 20603539.

> UHF receiver beeps in the following ranges: 400-417, 460-468, 860-880.

The 400-417 seems to match mine exactly! The other two are different. Mine beeps between 460-464 and 864-874. Wow, that's quite a big hole in the 800 band on yours!

> VHF receiver in UHF mode beeps in the 489-512 range. It does appear
> to be more sensitive below 489 than the 'real' UHF receiver.

Yep! This is exactly like mine!

> VHF receiver in 118-136 mode seems most sensitive around 121 MHz.
> I could receive aircraft around 133.65, but had difficulty in
> setting the squelch to still be able to hear weak signals there.

Well, I haven't played much with AM to be sure where its more sensitive.
It does copy 124.900 quite well (LAX approach). I only hear the planes
though and I haven't been able to hear an ATIS stuff.

> I did have to separate the cap
> from the glue holding it down. In fact, I separated the glue from
> the plastic film over the IC, and later applied a spot of epoxy to reattach
> the glue to the plastic.

Yeah, I had to use a lot of force to cut that glue away. I was VERY
scary doing that! I didn't think of gluing it back though.

> All in all, I'm pleased so far. It looks like I'll use the small coaxial
> power plug from Radio Shack to power it at work; but the plug is hard to
> remove since the top is so crowded. I wonder if the Kenwood plug has this

Yeah, I am using the Radio Shack plug also and its small enough to be
a bumper at pulling out! I just wonder how long the little rubber cap
can take the punishment of being opened and closed (the one that covers
the DC jack slot).

I've been using the PB-7 on it a lot. That 1100mA sucker lasts forever!
I don't mind the size of the radio with it on either. I kinda like it
a bit better. I used to have the Yaesu FT-727 and upgraded to this one.
I really couldn't stand the large antenna on it. This one is very nice
and doesn't seem to have the problems that the IC-24AT does (people have
been saying its more of a dummy load than an antenna!).

-> Gerry

3/14/91 -- A few more observations:

Many of the TH-77a's with 206* serial numbers have problems with memory loss
when they are operating and the pack runs down. This is cured by a resistor
change. AES replaced it in my TH77 without charge. I don't know which
resistor needs to be changed, however.

Also, some of the newer TH77a's seem to have a tone mixing with the audio.
PL disable has no effect; speculation points to a dc-dc converter in the
LCD display circuitry.

Due to the weak audio I generally run the volume near max. And I find
that my ears are hurting from the high-pitched noise when the HT squelch

closes. This is most irritating!

I recently did some sensitivity measurements of the TH77a. Here are the results again:

SENSITIVITY MEASUREMENTS

TH-77A

USING AN IFR MOD 1000S SERVICE MONITOR

1000 HZ TONE

REFERENCE IS 2 LCD SEGMENTS LIT

FREQ. SIGNAL

MHZ MICROVOLTS

118 1.6 AM

123 0.5

128 0.5

133 0.7

136 0.8

136 0.3 FM

141 0.3

146 0.4

151 0.4

156 0.4

161 0.5

166 1.0

171 2.0

174 2.5

FREQ. SIGNAL SIGNAL

MHZ uV. uV.

VHF VFO UHF VFO

400 8.0 NO RX

410 3.0 20.0

420 2.0 5.0

430 0.8 1.0

440 0.5 0.3

450 0.7 0.3

460 1.0 NO RX (birdie?)

470 1.7 3.5

480 3.0 20.0

490 5.0 40.0

500 7.0 50.0

512 NO RX 80.0

800 30.0

810 15.0

820 5.0

830	3.0
840	2.0
850	1.7
860	NO RX
870	3.5
880	4.5
890	5.0
900	6.0
910	8.0
920	11.0
930	15.0
940	15.0
950	15.0

--

-- James Dugal, N5KNX Internet: jpd@usl.edu
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University of Southwestern LA. Tel. 318-231-6417 U.S.A.

End of Info-Hams Digest
